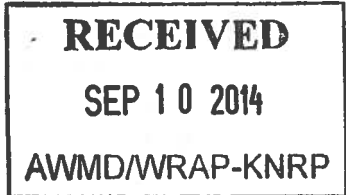




September 3, 2014

Brenda B. Epperson
Environmental Manager
MRP Properties Company, LLC
P.O. Box 696000
San Antonio, TX 78269-6000



**RE: Comments on the Human Health Risk Assessment Work Plan for Surface Water and Sediment
MRP Properties Company, LLC
1400 South M Street, Arkansas City, Kansas
RCRA ID# KSD087418695**

RCRA



Dear Ms. Epperson,

The Kansas Department of Health and Environment (KDHE) and the Environmental Protection Agency (EPA) Region 7 reviewed MRP's document dated July 18, 2014, submitted by MWH Americas, Inc. on behalf of MRP Properties Company, LLC (MRP) for the Former Total Petroleum Refinery in Arkansas City. The Human Health Risk Assessment (HHRA) Work Plan is required under Section III.H. of the Part II Permit. The HHRA work plan reviews existing surface water and sediment data and details methods to be used in the preparation of a baseline human health risk assessment. KDHE and EPA have the following comments:

KDHE Comments:

1. **Section 1.1.4 (p. 1-2).** Please revise this section to note that human health risks associated with exposure to surface water and sediments at the active water treatment system ponds will be evaluated upon closure of the Solid Waste Management Units (SWMUs) associated with this system. The active water treatment system ponds include SWMU's 3, 4, 5, 6, 7, and 8.
2. **Section 2.1 (p. 2-1).** In Section 2.1 MRP states that the area of the site is approximately 260 acres whereas Section 1.1.1 lists the area as approximately 267 acres. Please verify the correct acreage for the site and revise for consistency.
3. **Section 2.1.1 (pp. 2-1 and 2-2).** In the last paragraph of Section 2.1.1, MRP states that storm water from the asphalt operation area is captured in a lift station and treated in the Oxidation Ponds before release to the Walnut River. Please revise the text to note that the asphalt area storm water is processed through the Bioreactor tank before release to the Oxidation Ponds.
4. **Section 3.2.1 and 3.2.2 (pp. 3-2 to 3-4).** Sections 3.2.1 and 3.2.2 discuss data collected from previous investigations of surface water and sediments (Tables 3-1 through 3-4) and propose additional sampling, but are not clear as to whether the existing data meets the data quality requirements for use in the baseline human health risk assessment. Upon review, usability of existing surface water and sediment data is questionable due to age, Walnut River levee improvements and river realignment, and lack of

information relating to previous sampling locations. Please revise Sections 3.2.1 and 3.2.2 to state that existing data does not meet data quality requirements for inclusion in the surface water and sediments HHRA and will be used for historical reference only.

5. **Section 3.2.1 and 3.2.2 (pp. 3-2 to 3-4).** Sections 3.2.1 and 3.2.2 make multiple references to a Data Gap Characterization Sampling and Analysis Plan document. KDHE and MRP have agreed that the title of the above named document incorrectly describes the intent of this document and that a more appropriate title would be "Surface Water and Sediment Investigation Work Plan". The Preliminary Corrective Action Project Schedule, included in the quarterly corrective action progress reports, has already been updated to reflect this change. Please replace all references to the Data Gap Characterization Sampling and Analysis Plan document with the appropriate title.
6. **Section 3.2.2 (p. 3-3).** The first paragraph of Section 3.2.2 describes the proposed protocol for sediment sampling at SWMUs 9, 10, 11, and 23. The use of BER guidance document BER-RS-006 is acceptable for use in investigation of the stormwater ponds but the number of samples stated may not be sufficient for risk assessment purposes. The exact number of samples and sample locations will be addressed in the Surface Water and Sediment Investigation Work Plan. MRP may use composite samples for metals and SVOC analysis but discrete samples will be required for VOC analysis.
7. **Section 4.1.1 (p. 4-1).** The second paragraph in Section 4.1.1 defines the process for screening analytical data that will be included in the baseline HHRA.
 - a. MRP states in the first sentence that detected soil concentrations will be used to screen analytes not related to site operations. Sampling will include both soil (sediment) and water (surface water). Please revise the text to include both soil and water concentrations.
 - b. MRP states in the third sentence that surface water concentrations will be used in screening site related analytes. Screening should include both media addressed in the work plan. Please revise the text to include both surface water and sediment concentrations.
8. **Section 4.2.2 (p. 4-5).** MRP states that the Exposure Point Concentrations (EPCs) for sediment in the storm water retention ponds will be based on three composite samples from each pond. Composite sediment samples will not be allowed for analysis of VOCs. Please refer to Comment #6.
9. **Section 4.2.4 (p. 4-9).** MRP references a Unit Risk Factor (URF) when calculating Incremental Lifetime Carcinogenic Risk (ILCR). Current EPA terminology has replaced URF with Inhalation Unit Risk (IUR) when calculating carcinogenic inhalation risk. Please replace references to the URF with the current terminology.
10. **Section 5.0 (p. 5-1).** Section 5.0 contains the list of references cited in the HHRA Work Plan for Surface Water and Sediment. Section 3.2.2 cites KDHE (1996) as the document to be referenced for sediment sampling at the storm water retention ponds (SWMUs 9, 10, 11, and 23), but no reference is listed in Section 5.0. Please revise Section 5.0 to include the reference document cited as KDHE (1996).
11. **Figure 4-1.** The Conceptual Site Model for the facility is described in Sections 4.1.2.1 through 4.1.2.2 and depicted in Figure 4-1. The exposure pathways described in Sections 4.1.2.1 through 4.1.2.2 for on-site sediment in the storm water retention ponds and off-site sediment in the Walnut River do not match the exposure routes shown in Figure 4-1. Please verify and revise Figure 4-1 as necessary.

EPA Comments:

1. **Sections 3.2.1 and 3.2.2 (p. 3.3).** Details on sampling locations, procedures, and methods will be described in a separate Surface Water and Sediment Investigation Work Plan. The EPA ecological and human health risk assessors look forward to reviewing these details. For instance, we would like to know how the sediment samples will be collected (e.g., Ponar grab, etc.).

We read on page 4-2 that impacted off-site sediment has been covered or separated from the current river channel. If possible, we suggest that MRP attempt to locate historical records such as the location and depths of the Walnut and Arkansas Rivers and associated levees, prior to modifications made by the Army Corps of Engineers. We also suggest consideration of how stormwater exited the site before implementation of the NPDES-permitted capture/treatment/outfall system. These considerations may help MRP hypothesize where the highest levels of contamination in off-site sediment and surface water are currently located, understanding that the likelihood of potential exposure by human and ecological receptors is equally important when determining sampling locations.

2. **Section 3.2.2 (p. 3-3).** The sediment samples planned for the stormwater ponds include a composite of discrete samples collected from each of four quadrants in each pond bottom. Page 3-3 indicates that these samples will be collected from 0 to 2 feet below ground surface. Later, page 4-3 explains that this depth was selected due to the extremely shallow groundwater table. Samples from 0 – 2 ft bgs are appropriate for evaluating potential risks to construction workers involved in digging, expanding, or moving these ponds; however, it is more appropriate to collect samples from the surface (i.e., 0 – 2 cm bgs) to evaluate potential risks to groundskeepers. We recommend collecting on-site sediment samples from both the surface and the 0 – 2 ft bgs depth intervals. An exception could be made if we had evidence to suggest that contamination levels were higher at the surface or at depth, but we do not believe sufficient data is available to make this determination at this site.
3. **Tables 3-1 and 3-2.**
 - a. Chromium should be compared to the EPA's tap water regional screening level of 0.035 µg/L for chromium (VI) since data on the species of chromium present at this site are not available.
 - b. Lead should be compared to the Maximum Contaminant Level of 15 µg/L, rather than 0.28 µg/L, unless tetraethyl lead was used or has been present at this site in which 1.3E-04 µg/L is the appropriate RSL.
 - c. Please ensure that the tap water RSLs used in the risk assessment are based on a 1E-06 excess cancer risk or a non-cancer hazard quotient of 0.1, as stated in Section 4.1.1. For example, the RSLs for toluene, xylene, anthracene, and others are based on an HQ of 1, not 0.1.
4. **Tables 3-3 and 3-4.** Chromium should be compared to the EPA's industrial soil RSL of 6.3 mg/kg for chromium (VI).
5. **Figure 4-1 and Section 4.1.2.2 (p. 4-3).** MRP plans to evaluate exposures to on-site surface water and sediment (i.e., the stormwater retention ponds) by future industrial/commercial workers (i.e., maintenance-type workers) and future utility/construction workers (i.e., those involved in expanding, modifying, or moving the ponds). Evaluation of off-site exposure to surface water and sediment (i.e., the Walnut River) is planned for current/future recreational receptors.

- a. **On-Site Surface water.** In contrast to Figure 4-1, we would consider inhalation of volatiles in outdoor air from on-site surface water to be a *de minimus* pathway.
 - b. **On-Site Sediment.** In contrast to Figure 4-1 but in agreement with page 4-3, we would evaluate exposures to volatiles and particulates in outdoor air originating in sediment (via a volatilization factor or particulate emission factor) by future industrial/commercial and utility/construction workers. Although we typically would not anticipate particulate emissions from sediment, these particular stormwater ponds are dry most of the year, so we believe dust could be generated.
 - c. **Future On-Site Construction Workers vs. Utility Workers.** We suggest that MRP need only to evaluate potential future exposures to on-site sediment and surface water by construction workers, not by utility workers. This is because both types of workers would likely be exposed to the same depth of material due to the very shallow groundwater table and because construction workers would likely be exposed for a greater length of time. In the risk assessment, MRP may indicate that evaluation of risks to construction workers is protective of utility workers.
 - d. **Off-Site Sediment.** Figure 4-1 does not indicate that inhalation of volatiles or particulates derived from off-site sediments by recreational receptors are complete pathways. In the risk assessment, we suggest a qualitative discussion of these potential pathways. For example, perhaps the concentrations of volatiles in sediment are minimal, so inhalation of volatiles is *de minimus*. Perhaps the sediment along the Walnut River is generally wet, precluding the generation of dust and rendering this an incomplete pathway. These are merely possibilities; please consider actual conditions along Walnut River when formulating the discussion.
6. **Section 4.1.2.2 (p. 4-3).** The last paragraph of this section describes how recreational receptors could be exposed to off-site surface water and sediment.
- a. Page 4-3 indicates that neither swimming nor wading will be evaluated, but we evaluate recreational exposures to surface water assuming one or the other, depending on the water depth. Please determine which scenario is more likely. We would tend to use an upper end water surface water ingestion rate while swimming and a mean ingestion rate to represent less consumption during a wading scenario. See Comment 10e.
 - b. Page 4-3 also indicates that recreational users could be exposed to off-site sediment down to 2 ft bgs. Please explain. If receptors would be more likely to be exposed to sediment only at the surface, please be sure to collect off-site sediment samples only from the 0 – 2 cm (or inches) bgs depth interval.
7. **Section 4.2.2 (p. 4-5).** Due to the limited number of samples planned, please be aware that the maximum detected concentrations (or maximum reporting limits) will be used as the exposure point concentrations. Insufficient data will be available to calculate 95% upper confidence limits on the means.
8. **Section 4.2.2.1 (pp. 4-5 and 4-6).** In the risk assessment, please be sure to use Exhibits 1-2 and 1-3 in RAGS Part E to determine whether it is necessary to evaluate dermal exposures to COPCs in surface water and sediment, respectively.

9. **Section 4.2.2.1 (p. 4-7).** The equation for “Noncancer Inhalation of Volatile COPCs in Surface Water” is not necessary for this risk assessment. See Comment 5.

10. Table 4-1.

- a. The Agency has recently updated the standard default exposure parameters. Please revise the exposure parameters used in Table 4-1 accordingly.
<http://www.epa.gov/oswer/riskassessment/pdf/superfund-hh-exposure/OSWER-Directive-9200-1-120-ExposureFactors.pdf>
- b. A child or youth recreational user of Walnut River should be evaluated, either in addition to or in place of an adult, in order to be protective. MRP should use their best judgment regarding the age of receptors that fish, swim, or wade in the river. Two suggestions are ages 6 to 16 years or 11 to 16 years of age. The age selected will determine the appropriate body weight, skin surface area, etc.
- c. For the construction worker scenario, an exposure frequency of 50 days seems conservative, but possible, given the size of the stormwater ponds. Please be aware that non-cancer hazards should be averaged over the duration of the project. For example, if workers are at their jobs 5 days per week, an exposure frequency of 50 days would take 10 weeks or 70 days. Thus, the non-cancer averaging time would be 70 days. Note that the value of “ED” for the construction worker scenario would still be one year because it is merely used to convert units in the exposure equations.
- d. A total exposure frequency of 45 days per year seems justified for an outdoor maintenance worker based on the discussion provided. If there is any documentation on how frequently on-site workers were exposed to the ponds in the past, this would also add to the discussion.
- e. An incidental surface water ingestion rate of 10.6 mL/hr was selected for the outdoor maintenance worker, the construction worker, and for recreational fishing. This value is the upper end value from a study on simulated fishing in a swimming pool, taken from Table 3-93 of the 2011 Exposure Factors Handbook.

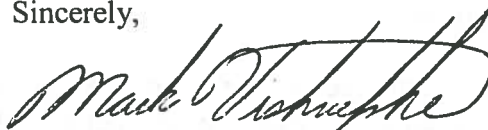
Prior to the 2011 EFH, Region 7 has used 50 mL/event to evaluate incidental water ingestion during wading and 50 mL/hr to evaluate swimming scenarios. Recently, we have used mean values in Table 3-5 of the 2011 EFH to evaluate wading scenarios and upper limit values from Table 3-5 to evaluate swimming scenarios. Table 3-5 provides the recommended values for swimming; data was deemed insufficient to provide standard recommendations for other scenarios.

At this site, MRP may use the 10.6 mL/hr for incidental ingestion by maintenance workers and fisherpersons. However, in an attempt for consistency across Region 7 sites, please use the mean incidental water ingestion rate of 21 mL/hr for construction workers. Because workers involved in digging out, expanding, or moving the ponds would be expected to have greater contact with surface water, we believe this value is justified. Please determine if wading or swimming is more likely at this site, based on the depth of the Walnut River. If wading is selected, please use the mean recommended values from Table 3-5 to evaluate off-site recreational exposures, and if

swimming is selected, please use the upper percentile values. The "per event" values in this table are based on swimming for 45 minutes.

Please respond to these comments by October 1, 2014 and submit revised pages as necessary. I would recommend a conference call between all parties to address any points of concern. If you have any questions, please contact me by phone at (785)-291-3760 or e-mail at (mvishnefske@kdheks.gov). Brad Roberts (EPA) can be contacted at (913)-551-7279 or e-mail at (roberts.bradley@epa.gov).

Sincerely,



Mark Vishnefske
Environmental Scientist III
Hazardous Waste Corrective Action and Geology Unit

cc: Jay Mednick – MWH
Brad Roberts – EPA Region VII - AWMD/WRAP
Allison Herring – DEA/SCDO/Waste Programs
Bill Bider – BWM